What is claimed is:

1. A copper-based alloy casting comprising:

69 to 88% of Cu;

2 to 5% of Si;

0.0005 to 0.04% of Zr;

0.01 to 0.25% of P by mass; and

a remainder including Zn and inevitable impurities, and

satisfying $60 \leq Cu - 3.5 \times Si - 3 \times P \leq 71$,

wherein mean grain size after melt-solidification is 100 μm or less, and α, κ and γ-phases occupy more than 80% of phase structure.

2. A copper-based alloy casting comprising:

69 to 88% of Cu;

2 to 5% of Si;

0.0005 to 0.04% of Zr;

0.01 to 0.25% of P by mass;

at least one element selected from a group consisting of 0.001 to 0.2% of Mg, 0.003 to 0.1% of B, 0.0002 to 0.01% of C, 0.001 to 0.2% of Ti and 0.01 to 0.3% of rare earth element; and

a remainder including Zn and inevitable impurities, and

satisfying $60 \leq Cu - 3.5 \times Si - 3 \times P - 0.5 \times [i] + 0.5 \times [ii] \leq 71$, [i] being a group consisting of Mg and B, and

[ii] being a group consisting of C, Ti and rare earth element,

wherein mean grain size after melt-solidification is 100 μm or less, and α, κ and γ-phases occupy more than 80% of phase structure.

3. A copper-based alloy casting comprising:

69 to 88% of Cu;

2 to 5% of Si;

0.0005 to 0.04% of Zr;

0.01 to 0.25% of P by mass;

at least one element selected from a group consisting of 0.02 to 1.5% of Al, 0.2 to 4.0% of Mn and 0.01 to 0.2% of Cr, and

a remainder including Zn and inevitable impurities, and

satisfying $60 \leq Cu - 3.5 \times Si - 3 \times P - 1.8 \times Al + a \times Mn + 0.5Cr \leq 71$ (a = 2 in a case that Mn is contained more than 0.5% and satisfies $0.2 \times Si \leq Mn \leq 2.0 \times Si$, and a = 0.5 in the other cases),

wherein mean grain size after melt-solidification is 100 μm or less, and α, κ and γ-phases occupy more than 80% of phase structure.

4. A copper-based alloy casting comprising:

69 to 88% of Cu;

2 to 5% of Si;

0.0005 to 0.04% of Zr;

0.01 to 0.25% of P by mass;

at least one element selected from a group consisting of 0.001 to 0.2% of Mg, 0.003 to 0.1% of B, 0.0002 to 0.01% of C, 0.001 to 0.2% of Ti and 0.01 to 0.3% of rare earth element;

at least one element selected from a group consisting of 0.02 to 1.5% of Al, 0.2 to 4.0% of Mn and 0.01 to 0.2% of Cr; and

a remainder including Zn and inevitable impurities, and

satisfying $60 \leq Cu - 3.5 \times Si - 3 \times P - 0.5 \times [i] + 0.5 \times [ii] - 1.8 \times Al + a \times Mn + 0.5Cr \leq 71$ ($a = 2$ in a case that Mn is contained more than 0.5% and satisfies $0.2 \times Si \leq Mn \leq 2.0 \times Si$, and $a = 0.5$ in the other cases),

wherein mean grain size after melt-solidification is 100 μm or less, and α, κ and γ-phases occupy more than 80% of phase structure.

5. The copper-based alloy casting according to any one of claims 1 to 4, further comprising:

at least one element selected from a group consisting of 0.1 to 2.5% of Sn, 0.02 to 0.25% of Sb and 0.02 to 0.25% of As by mass.

6. The copper-based alloy casting according to any one of claims 1 to 5, further comprising:

at least one element selected from a group consisting of 0.004 to 0.45% of Pb, 0.004 to 0.45% of Bi, 0.03 to 0.45% of Se and 0.01 to 0.45% of Te by mass.

7. The copper-based alloy casting according to any one of claims 1 to 6,

wherein P/Zr is in the range of 0.8 to 250, Si/Zr is in the range of 80 to 6000, and Si/P is in the range of 12 to 220 in percent by mass.

8. The copper-based alloy casting according to any one of claims 1 to 7,

wherein dendrites are crystallized, and the dendrite have shapes with no arms.

9. The copper-based alloy casting according to any one of claims 1 to 7,

wherein Fe and/or Ni contained as impurities are/is contained 0.5% or less by mass.

10. The copper-based alloy casting according to any one of claims 1 to 7,

wherein Zr is in the range of 0.0010 to 0.0095%.